

- Euplectus karsteni*, Reich., 3 with *A. (D.) brunneus* in oak tree, Windsor Forest 28.viii.36, 2 ditto 1.ix.36.
 With *A. (D.) fuliginosus* (Waterhouse) Fowler.
 With " " " (Rouget) André.
 With *Formica rufa* von Hagens, and Kraatz.
- Euplectus nanus*, Reich. With *A. (D.) brunneus* in oak tree, Windsor Forest 1.ix.26, ditto 15.ix.36.
 With *Formica rufa*, von Hagens, and Kraatz.
 With *A. (D.) brunneus* in company with *Euryusa sinuata* and *Batrisesodes schwabii*, Reitt. Paskau, Reitter.
 With *A. (D.) fuliginosus* and *F. rufa* (Märkel) André.
- Euplectus sanguineus*, Denny, with *A. (D.) brunneus* in ash tree, Windsor Forest 25.vi.25.
- Euplectus piceus*, Mots., with *A. (D.) brunneus* in oak tree, Windsor Forest 15.ii.28; with *A. (D.) fuliginosus* in hawthorn, Windsor Forest, 24.ix.30; several with *brunneus* in oak tree, Windsor Forest, 28.viii.36.
 With *Formica rufa*, Parkhurst Forest, Fowler.
 With *Leptothorax acervorum*, F. in oak branches, Wytham Park (Collins), Walker.
 With *A. (D.) emarginatus* (Märkel) André.
- Euplectus nitidus*, Fair., with *A. (D.) brunneus* in oak tree, Windsor Forest, 11.vi.30.
- Euplectus brunneus*, Aubé, with a *Myrmica* in elm stump, Wytham Park (Collins), Walker.
- Euplectus afer*, Reitt., v. *infirmus*, Raff., with *A. (D.) brunneus* in ash tree, Windsor Forest, 25.ii.25, 29.vi.25; ditto in considerable numbers, 9.vii.26, and 9.vii.27.
- Euplectus signatus*, Reich. In ants' nests, Fowler.
 In hundreds in a small *F. rufa* hillock, Dutch Limburg, Wasmann.
 With *A. (D.) fuliginosus* and *F. rufa* (Märkel), Aubé.
- Euplectus acanthifer*, Reitt., 3 ♂♂ and 4 ♀♀ with *A. (D.) brunneus*, Corfu, Reitter. Reitter and Wasmann consider it to be a regular *brunneus* guest.
- Euplectus fischeri*, Aubé. Only with *Formica rufa*, von Hagens and Kraatz.
- Euplectus ambiguus*, Reich., with *F. rufa*, Dutch Limburg, Wasmann.
 With *F. rufa* (Märkel) André.
- Euplectus tuberculosus*, Tourn., with small red ants.
- Euplectus sikorae*, Wasm., with *Ponera johannae*, Forel, Madagascar (Sikora), Wasmann.
- Bibloporus bicolor*, Denny, with *A. (D.) brunneus* in oak tree, Windsor Forest, 4.v.24.
 With small ants, André.

Random Notes on Argentine Collecting.

3.—The Riverain Forests of the Chaco-santafecino.

By KENNETH J. HAYWARD, F.R.E.S., F.R.G.S., F.Z.S.

To the north of the Province of Santa Fé, along the western bank of the great river Paraná, lies a stretch of low ground some twenty-five miles wide, that for want of a better term I always refer to as the river forest.

Forest in the accepted sense of the word it is not, but rather a wild waste of low ground, intersected by many streams and backwaters, and studded with innumerable lagunas, the dry land everywhere covered with the tall sword-grass and dotted with clumps of forest or creeper-covered cane-breaks, liable to inundation when the rivers run in flood.

To me, whilst I lived in that part of the country, this region was the most interesting of my hunting grounds. Rich beyond dreams with bird life of every kind, the rivers and lagunas teemed with fish, their placid surfaces covered with floating camalote and water hyacinth and the great *Victoria* lilies on whose leaves the Boa curuyú basked in the sun. Here too were many strange insects, and at night myriads of fireflies lit up the weed-covered waters like a fairy Venice. The portion that I knew best lay between the Rio Paranaminí and a more stagnant backwater known as the Pindó at a point where these two streams formed an island some two miles wide and two or three leagues in length, where one could zig-zag amongst the lagunas or follow the streams as one pleased.

As it meant a journey of some thirty miles to reach this spot, I was accustomed to spend long days there, when I had the chance to visit it, arriving soon after sunrise and leaving only when nightfall was approaching and on many occasions I camped along the rivers for shorter or longer periods.

I am afraid its greatest attraction was the magnificent wild shooting and the extraordinary mixed bag that at times fell to one's gun. Amongst the long rough grass one found both the large and small tinamous and an occasional hare and in the woodland wild turkey, charata (*Ortalis canicollis*) and at least six species of pigeon. But undoubtedly the greatest interest lay in the lagunas with their population of water loving birds that swam on the surface or fed along the muddy flats. How great was their variety may be gauged from the fact that no less than sixteen species of duck and teal and about an equal number of the snipe family, *Scolopacidae*, are mentioned in my notebooks. To these one must add the numerous brightly coloured kingfishers, the storks, cranes and ibis, whilst in the forest belts one found bright plumaged parrots of several species and hundreds of lesser birds whose colours ranged from black to pure white, from yellows and vivid reds to the more sombre browns. It will be long before the beauty of a flight of pink-breasted flamingos as they flew leisurely across the reddening sky of an early dawn, fades from my memory, nor once heard, can one ever forget the long drawn out "chah-hah" of the "crested screamer" that floating down from the blue vault of heaven reaches one with such purity of tone and seems symbolic of great open spaces and of days, when only the Indian roamed the forests and pampas of this land.

In the spring the sunlit forest glades and river banks became a coloured carpet of purple petunias, of pink and scarlet verbenas, golden-yellow daisies, the white flowers of the wild tobacco plant, and a host of other wild blossoms, whilst the trees and bushes were covered with trailing mauve and pink convolvuli.

At this period the dark *Papilio perrhebus* mingled with the yellow Catopsilias and common Vanessids, *Colias lesbia*, the common *Erynnis* species of the Hesperiids with many of the long tailed *Goniurus* and

Chioides catillus and *Codatractus aminias*. *Terias deva* flew amongst the bushes intermingling with the shade loving *Euptychia* of which at least four species abounded. On rare occasions a flash of brilliant metallic blue would disclose the magnificent *Pseudolycaena marsyas*, but I searched in vain for the common *Heliconiids* of which at least *H. erato* f. *phyllis* might have been expected:

Later in the season with the increasing heat the flowers in great part disappeared and the vegetation became dry and burnt up and fewer butterflies were to be found. Collecting amongst the tall sword grass and in the little open spaces that one found amongst it, where the turf was short and where a beautiful dwarf yellow iris flowered, one found *Hamearis chilensis* and *Epulus signata* and occasional specimens of the very local Riodiniid *Ematurgina bifasciata*, the typical lightly marked form, that differs so greatly from the form I have since taken in Entre Rios and from the specimens I know from Córdoba, where the markings are so expanded that they almost cover the wing to the exclusion of the ground colour.

In mid-summer when the Ubajay trees shed their soft yellow fruits and they lay fermenting on the ground, it was worth while paying a visit to these trees since a great number of fruit-loving beetles, especially *Cerambycidae* and the small *Nitidulidae* were always to be had, and many wasps and flies.

Another fruit that attracted an enormous number of flies was that of a bush called locally arichí-chú. The fruit is small and when ripe the husk-like covering splits exposing the bright carmine flesh and flat black seeds. Birds soon clean out the flesh, but the husk with its brilliant interior colouring continues to attract insects for several days. Many beetles also frequented the ripe fruits of certain large *Opuntia* that one occasionally came across on the higher ground.

On one occasion, whilst exploring a very dark patch of forest, I startled a large insect of some six-inch wing span, but was unable to capture it, nor did I get a long enough view of it to be able to say for certain what it was, and whilst it was probably only the common *Frebus odora*, or another of the very similar large black moths that one finds commonly in the darker Misiones forests, yet there always remained the hope in the back of my mind that it might have been a *Caligo*, a genus of which I never took a representative in the Chaco-santafecino. In this same tract of woodland one sometimes found *Ageronia februa*, and on certain days I have heard their "clicking" at a distance of over forty yards. They delighted to rest on the rough bark of a certain fallen and decayed tree from which they would rise a dozen at a time as one approached.

Precis lavinia was generally very common in the district and at times little less than a plague, nevertheless the dark *infuscata* form was always very rare. In May of 1928 after an extremely wet late summer and fall I was collecting between the Pindó and the Paranaminí one day and was surprised to find that out of some twenty eight specimens of *lavinia* taken, practically every one I saw, no less than twenty five were of the *infuscata* form, whilst a fortnight later the same experience was repeated though only very few of the insects remained on the wing. This fact coupled with later observations seems to indicate some connection between excessive dampness during the early stages and a preponderance of the suffused form.

In the forest hereabouts one used to find a great number of the giant webs of a social spider, probably *Aranea socialis*. During the daytime the spiders, which often numbered many hundreds in a single colony, formed themselves into a living ball, which varied in size according to the number of spiders present till at times it was nearly as large as a football. When I first saw these balls of spiders in the trees I mistook them for the nests of the camuatí wasp (*Polybia* sp.). On close examination one finds what at first sight had appeared one gigantic web is in reality composed of many hundreds of individual spider's webs all depending from a series of main threads. So large are the combined webs that they often completely block a forest path or stretch for several yards across the forest glades. Each individual web is owned by a single pair of spiders, and at dusk they may be seen hurrying to take up their positions for the night's hunting. At first there is great activity whilst the day's damage is repaired, after which they remain quiet until some unfortunate insect blunders into their section of the web. Just before daylight they retire once more to the shade and "ball up" for the day. To see these huge webs at dawn when the dew-drops on them glisten like gold in the soft rosy half-light that, as the first rays of the sun top the horizon, changes for a few moments the whole aspect of the forest till even the waters of the lagunas appear flushed with pink, is a sight worth going far to see. But to walk into one of these webs in the darkness is quite another story, for in a few seconds one is covered from head to foot with hundreds of startled angry black and red spiders that take no little time and patience to remove.

But apart from the birds and insects, this riverain forest contained many species of water snails, fresh water mussels and razor-shells, some of extraordinary size, that could be picked up along the rivers and by side of the permanent lagunas. There were gaily coloured frogs and ugly toads, snakes and small mammals and iguana. Along the rivers and in the lakes the *Caiman sclerops* abounded sometimes reaching a length of nine or ten feet. Nor was it impossible that one might come suddenly on the little "guasuncho" deer or the larger "ciervo" or even the shy "carpincho," largest of the rodents, and on one memorable occasion I chanced to see a troupe of black monkeys that screamed at me from the tree tops.

Thus as one returned after the day's outing and saw dimly the cattle huddled closely around the flickering smudge fires lighted to keep off the hordes of mosquitos, when all the grassland and forest seemed alive with twinkling fireflies, there was always much food for thought and fresh memories to be pigeon-holed away or later written up in one's notebooks.

An Extract.

By HORACE DONISTHORPE, F.Z.S., F.R.E.S., etc.

My colleague, Dr. Malcolm Burr, has lent me the book "An Almanac for Moderns" by Donald Culross Peattie: George Allen and Unwin Ltd., London, as there are various short chapters on ants to be found in it. This note is not in any way a criticism on the book, which appears to me to be written in a very pleasant style, but to call